

1987 To Today: More Mecklenburg Growth Than Ever Before

By Vicki Bott, Land Use and Environmental Planning Division Director
University of North Carolina Charlotte Urban Institute

The 20-year period from 1987 to 2007 has been remarkable for two things that have had significant effects on Mecklenburg County's and the 14-county region's environment: unprecedented population growth and rate of land development¹.

Population Growth

From 1987 to 2007, Mecklenburg County has seen population growth that outstripped anything in its prior history: The County grew from 473,760 residents in 1987 to an estimated 857,379 in 2007, an 81 percent increase (383,619 people). This is roughly the equivalent of a city the size of St. Louis moving to the County². In fact, the rate of population growth has been accelerating since 1970: it was 14 percent from 1970 to 1980, 26 percent from 1980 to 1990, and 36 percent from 1990 to 2000. Estimates from the NC State Demographer's Office for 2007 suggest that the County population has grown 39 percent from 1997 to 2007.

The region has not been far behind Mecklenburg County in increasing rates of population growth: from 1987 to 2007, the 14-county region grew by 55 percent (from 1.5 million to 2.4 million residents.) The regional population growth rate held relatively steady in the 15-16 percent range from 1970 to 1980 and again from 1980 to 1990, and then accelerated to 26 percent from 1990 to 2000. Based on 2007 data from the two states' demographers' offices, the region's 10-year growth rate (1997 to 2007) remains at about 26 percent.

Population in Mecklenburg County and the 14-county Region

	Mecklenburg	Region
1970	354,656	1,215,422
1977	383,800	1,329,300
1980	404,270	1,400,247
1987	473,760	1,545,331
1990	511,433	1,620,075
1997	617,328	1,903,712
2000	695,454	2,038,719
2007	857,379	2,392,474

Note: Population estimates are from the U.S. Census, except for 2007 data, which are from the NC and State Demographers offices

Population Growth by County 1987 to 2007



Mecklenburg Growth continued on page 96

Mecklenburg Growth continued from page 95

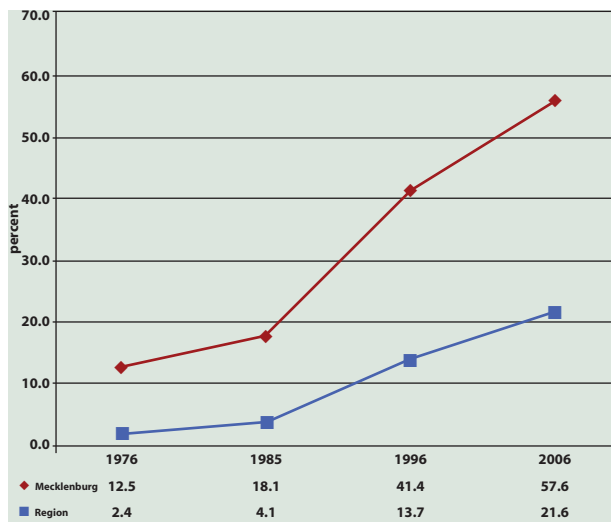
Changes in Land Development

Mecklenburg County has roughly 334,000 acres of land area (337,000 prior to the 1990 change in the County's boundaries transferring the Lake Norman "Meck Neck" to Iredell County.) Given the accelerating rate of population growth over the last 20 years, it is not surprising that the extent of developed land in the County has also increased dramatically.

A recent study by UNC Charlotte's Center for Applied Geographic Information Science (CAGIS) and the UNC Charlotte Urban Institute provides an analysis of developed land area for Mecklenburg County and the 14-county region. The CAGIS study, funded by the Open Space Protection Collaborative through a grant from the John S. and James L. Knight Foundation, used satellite imagery to assess the amount of developed land at four points in time, roughly 10 years apart, from 1976 to 2006³. Developed land includes areas in which a statistically significant portion (typically 15-25 percent) of land cover is impervious surfaces, such as buildings, roads, and parking lots, or is non-agricultural bare earth⁴.

According to the CAGIS study, developed acres in Mecklenburg County have gone from 12.5 to 57.6 percent of total acres from 1976 to 2006, a span of 30 years. During the same time period, the 14-county region went from 2.4 percent developed to 21.6 percent developed, reflecting the more rural nature of much of the region outside Mecklenburg County. From 1985 to 2006, a time period roughly comparable to the SOER's 20-year perspective, the County has seen an increase in developed land of over 200 percent (from 18 percent to 57.6 percent.) The increase for the 14-county region has been even more dramatic: over 400 percent. For both the County and the 14-county region, the biggest change occurred between 1985 and 1996.

Developed Acres As A Percent of Total Acres



Developed Acres

Mecklenburg

	# Acres	percent of Total	percent Change
1976	42,247	12.5	
1985	60,790	18.1	44
1996	138,217	41.4	129
2006	192,424	57.6	39

Region

	# Acres	percent of Total	percent Change
1976	105,727	2.4	
1985	178,473	4.1	68
1996	605,755	13.7	238
2006	948,892	21.6	58

From 1985 through 2006, the County's rate of land development averaged 17.2 acres per day, and the region's, 100.5 acres per day. Based on U.S. Census population estimates, the study's results

Developed/Undeveloped Land for the 14 County Region



suggest that in 1985, the County had 0.14 developed acres per person; in 1996, it had 0.22 developed acres per person, and in 2006, it had 0.23 developed acres per person. By comparison, the 14-county region averaged 0.12 developed acres per person in 1985 and 0.41 developed acres per person in 2006.

Mecklenburg County's 10-year rates of land development from 1985 to 2006 have far outpaced the 10-year rates of population growth over the comparable time period (1987 to 2007.) In basic terms, we are taking up more "space" per person in our development patterns than we used to. The good news is that the number of developed acres per person did not increase between 1996 and 2006, perhaps reflecting the recent trend toward in-fill and compact, walkable development.

For the 14-county region as well, the 10- and 20-year rates of land development have far exceeded the population growth rates: the region experienced a 55 percent increase in population from 1985 to 2006, with a 433 percent increase in developed land area. Between 1985 and 2006, the region as a whole has gone from having about the same number of developed acres per person as Mecklenburg County, to having almost twice as many developed acres per person as Mecklenburg County. The number of developed acres per person in the region has increased every decade, including from 1996 to 2006 when Mecklenburg remained steady, according to the CAGIS study.

Land Use Implications

Undeveloped land provides ecological services, many of which are missing from or are compromised on, developed land: Natural vegetation prevents soil erosion and conditions the soil, slows rainfall, helps the soil absorb and filter runoff, moderates summertime air temperatures and provides shade, and provides habitat for native plant and animal species. Undeveloped land is also used by people for recreation, and increasingly, as an element in tourism.

Developed land is rarely converted back to undeveloped uses and so development is considered a permanent state. Unless development is planned such that it accommodates a community's ecological, recreational, and economic needs for undeveloped land, a county growing as rapidly as Mecklenburg, and indeed, a region growing as rapidly as this one, will eventually find that its environmental quality of life is seriously compromised.

Mecklenburg County has been a leader in the Region in policies that aim to both preserve adequate amounts of undeveloped land and mitigate the potential negative effects of developed land. Among these are land banking and the use of bond money to purchase land for nature preserves and parks, early adoption of County-wide zoning and adoption of land use plans that embrace land use planning best practices. These and others are the subjects of more detailed articles elsewhere in the report.

¹ The 14-county region includes Mecklenburg and 13 surrounding counties in NC and SC: Anson, Cabarrus, Catawba, Chester, Cleveland, Gaston, Iredell, Lancaster, Lincoln, Rowan, Stanly, Union (NC), and York

² In 1990, St. Louis's population was 396,685, according to www.citypopulation.de

³ Note that satellite imagery for 1985 was used in place of 1986 due to high percentages of cloud cover in the 1986 imagery making evaluation of conditions on the land infeasible. Imagery for 2007 was not yet available at the start of the study, so the years 1976-2006 were chosen as the study's time period.

⁴ Based on 30-meter-square pixels in the satellite imagery, roughly 0.22 acres each.

Land: 1987 and Now

*By Julie Clark, Park Planner; Michael Kirschman, Branch Manager; and Don Seriff, Natural Resources Manager
Mecklenburg County Park and Recreation*

The relationship between population growth and the environment is undeniable. The Mecklenburg County Park and Recreation Department emphasizes development of active parks, but also the preservation of biodiversity and natural areas.

Municipalities in the County struggle to balance population growth with water quality, air quality, and waste management through daily land use decisions. We continue to feel the effects related to the form and distribution of growth, even with the many environmental initiatives that have been established.

Since 1980s, Mecklenburg County has been losing open space at the rate of 17.2 acres per day, and lost more than 22 percent of its tree cover between 1984 and 2001.

Discussion of land-use issues with regard to the environment was not presented in the 1987 State of the Environment Report. In 1987, land use was considered to be a “quality of life” issue, thus making it difficult to define as related to the environment. Data comparison is provided here as it was available from a suite of documents developed 20 years ago. Land use decisions in 2007 are beginning to incorporate consideration of the environment as more information has allowed for clearer connection between these two complicated topics. Land use is presented here to provide a baseline evaluation for future use and comparison.

Then and Now

1987: Expected growth is expected to approach 575,000, an almost 27 percent increase, within less than twenty years (source: 1987 SOER).

2007: Expected growth significantly exceeded earlier estimates as the current population is 857,379, an increase equivalent to 55 percent of the population in 1987.

1987:

- Population: 473,760
- Interstate, US, and State Highways: 11
- Miles of Road: 2,866
- Certified Sustainably Designed Projects (e.g., LEED): 0

2007:

- Population: 857,379*
- Interstate, US, and State Highways: 17
- Miles of Road: 4,830
- Certified Sustainably Designed Projects (e.g., LEED): 4

*Population estimate from <http://demog.state.nc.us>, County/State Projections: Annual County Populations 2000 - 2009.

Park Land and Open Space:

1989: Total parkland per 1,000 residents was 11.3 acres.*

2007: Total parkland per 1,000 residents is 21.3 acres.**

Currently, average acres per 1,000 residents of parkland in cities with similar populations is 30.5 acres. Furthermore, if parkland is compared to other urban areas as a percent of land, currently 5.2 percent of Mecklenburg County land is designated as parkland. The average amount of land set aside for parks in cities with comparable populations is 8.8 percent, and the average for all cities, regardless of population, is 9.8 percent. Based on this data, Mecklenburg County/Charlotte currently has a deficit of 7,825 acres based on population and/or 16,311 acres based on percent of land.¹

* Based on 1990 population of 511,433 and 5,784 acres of parkland ** Based on 2006 population of 850,178 and 18,105 acres of parkland ¹ Center for City Park Excellent. Trust for Public Lands. 2007

Greenways:

1987: No planned greenway system existed.

2007: The County currently operates 11 greenways totaling more than 30 miles of developed trails, with 185 miles planned.

Natural Communities/Biodiversity:

1987: Only sporadic assessments for biological resources had been conducted.

2007: Natural heritage program is well established. Identification of 27 biologically important natural areas was completed in 1998 of which 15 (56 percent) are now protected, 4 (15 percent) have been lost, and 8 (29 percent) are still in need of protection. A 2008 update of the natural heritage survey will count Mecklenburg County as one of the three counties in North Carolina having completed such an update.

Land Findings and 2008 Recommendations

Findings

- The citizens of Mecklenburg County have supported a total of \$245,910,000 of park land acquisition bond referendums that have purchased a total of 17,553.45 acres.
- With the recent passage of the 2007 Park Land Bond, additional watershed protection properties will be protected in the mountain Island Lake watershed. It is anticipated that Mecklenburg County's population growth will not cease in the coming decades. The 2008 Comprehensive Park and Program Master Plan will include development, identification and strategies for natural resources protection consideration.
- Green building design principles are being incorporated throughout the County in both new and renovated projects to meet LEED certification requirements. Waterless urinals, light motion sensors, electronic door and gate locks, porous pavement applications and other building friendly materials are explored on a regular basis to support low impact development and sustainable design standards for all new construction.

Recommendations

- To protect natural areas and biological assets, remaining large parcels of undeveloped land and smaller quality natural areas should be targeted for acquisition and preservation. Additional cost

sharing partnerships with state and federal programs should be investigated and conservation easements with private land owners, businesses, industries, and local land trusts, and other land protection partnerships should be pursued.

- Conservation development principles as identified through local planning efforts (such as the Charlotte-Mecklenburg Planning Commission's General Development Policies) should be applied and strengthened during the development process.
- Continue to pursue joint-use easements with other County agencies and utilities as well as land dedications through the subdivision and rezoning process.
- Continue to build onto existing greenway trails and focus on connections to parks, schools, neighborhoods, points of interest, and transit corridors.
- A focus on linking together regional natural assets and existing preserves should be a priority for each of the county governments in this region and as such, partnering with allied state and federal agencies to pool resources and leverage assets is required.
- Create conservation action plans and state-ments (CAPS) to document conservation status and monitor existing status toward long-term sustainability of local species.
- Provide support for and implement initiatives that work to eliminate the threat of invasive alien species.
- Protect our natural heritage by actively striving for no net loss of species. This will require systematic inventories in additional natural areas and continued use of scientifically based inventory and monitoring data to identify conservation priorities and direct conservation initiatives and natural resource management throughout Mecklenburg County.
- Continue to partner with allied state and federal agencies to pool resources and leverage assets. This will provide the best research and management opportunities available for natural resources in this urban area (e.g., continuing to partner with the NC Wildlife Resources Commission to implement urban wildlife management strategies as part of the NC Wildlife Action Plan).

Mecklenburg County Parkland and Open Space

By Blaine Gregory, Senior Park Planner
Mecklenburg County Park and Recreation

Parkland acquisition and capital development oversight for the County primarily resides in the Capital Planning and Alliance Development Division of the Mecklenburg County Park and Recreation Department. Because park planning cannot occur independent of its surroundings, due consideration must be given to external forces and trends that influence demand of recreation programs, services, and land needs. Certain trends in Mecklenburg County are integral to addressing this need for future park and greenway amenities as a foundation for land planning. These include:

- Population Dynamics
- Household Composition
- Age Shifting
- Land Use
- Environmental Issues
- Equity and Access to Open Space

Population Growth

Population growth, on any scale, typically begets increased consumption of natural resources. Perhaps the most detrimental and wide-ranging is the consumption of land. Unlike many of the natural resources derived from it, land itself is a finite commodity of which many of its uses have no substitutive entity. The preservation of land is critical to ensuring the many benefits that are derived from open space.

Mecklenburg County has experienced continued growth since 1960, more than tripling in

population in that time. See pages 95-97 for detailed information on population growth.

Most alarming, perhaps, is the population growth that has occurred within the individual municipalities, lending credence to the theory that the County is experiencing rapid *suburbanization*, coupled with years of *decentralization* of the city of Charlotte. The town of Huntersville population increased 825 percent in the 1990s. The town of Matthews has experienced a 2,260 percent increase in population since 1980. Figures indicate that this trend of intense local population growth is not expected to falter any time soon. By 2010, Mecklenburg County population will be approaching the million-person threshold with 990,525 inhabitants. This figure will represent an alarming 42 percent increase from 2000, suggesting that this decade will yield the most stress upon our natural resources that we have yet experienced. Population growth is expected to continue past this decade as well. By 2015, Mecklenburg County will be home to 1,182,128 residents¹.



Mecklenburg County Park and Recreation Land	Developed Acreage	Undeveloped Acreage	Total Acreage
1 Nature Preserves	3,312.89	2,500.92	5,813.81
2 Community Parks	903.08	106.75	1,009.83
3 District Parks	1,519.08	2,650.01	4,169.09
4 Neighborhood Parks	1,238.25	335.14	1,573.39
5 Golf Courses	1,216.50	0	1216.5
6 Greenway Land	0	2,875.85	2,875.85
7 Recreation Centers (Stand Alone)	37.35	0	37.35
8 Special Facilities	431.84	425.79	857.63
Total Properties	8,658.99	8,894.46	17,553.45

Mecklenburg County's Biodiversity

*By Don Seriff, Natural Resources Manager
Mecklenburg County Park and Recreation*



Biodiversity is more than just a buzz word. A contraction of the term “biological diversity,” biodiversity is a single word that characterizes the sum of all life within an area. Mecklenburg County's biodiversity is made up of literally thousands of species of plants, animals, insects, fungi, and bacteria. Many of these plants and animals are common, some are rare, and a handful are threatened or endangered.

Plant diversity ranges from delicate ferns and strikingly beautiful wildflowers, to valuable fruit producing shrubs and vines, to massive “treasure trees,” champion-sized trees for this area. Animal diversity ranges from furry mammals like otters, tiny shrews, bats, and bobcats, to scaly snakes and lizards, slimy salamanders and frogs, a diversity of colorful birds, fish, and hundreds of insect species. Most of the plant and animal species found here are native (indigenous) to Mecklenburg County, but in recent years many invasive alien species have expanded into this area. Much of what we know about the biodiversity of Mecklenburg County has been learned within the past 20 years. During this period of unbridled development, it has become vitally important to understand what was here, what is here, and what we are in danger of losing.

Natural Heritage Program

Prior to 1992, only sporadic assessments of biological resources had been conducted within the county. In 1992, the Mecklenburg County Park and Recreation Department partnered with the North

Carolina Natural Heritage Program to conduct the County's first formal inventory of its natural areas. During the inventory, the department worked with the public and consulting biologists to identify areas throughout the county that contained natural areas rich with biodiversity. The initial survey was completed by 1995, and a report was published in 1998 identifying 27 biologically important natural areas. Each of these natural heritage sites was ranked as being of national, state, regional, or county significance and they were targeted for protection. Of the initial 27 sites identified, 15 (56 percent) are now protected, four (15 percent) have been lost, and eight (29 percent) are still in need of protection.

The natural heritage survey also provided data documenting the presence of various types of natural communities within Mecklenburg County (table 1). Natural communities are defined as distinct, reoccurring groups of plant and animal species that occur together in defined areas. The Park and Recreation Department's natural resource management program is based on managing natural communities in lieu of managing for individual species. This allows for the protection of countless other species that would otherwise not be specifically targeted for conservation. The overall management goals are to: 1) manage for natural communities, 2) preserve and restore habitats for the rare, threatened, and endangered species, and 3) to keep common species common.

Biodiversity continued on page 102

Biodiversity continued from page 101

Table 1

Natural Communities in Mecklenburg County

Upland Forests

Dry-Mesic Forest

Dry Oak-Hickory Forest

Basic Oak-Hickory Forest

Xeric Hardpan Forest

Mesic Forests

Mesic Mixed Hardwood Forest

Basic Mesic Forest

Floodplain Forests

Piedmont Levee Forest

Piedmont Bottomland Forest

Piedmont Alluvial Forest

Piedmont Semi-permanent Impoundment

Rock Outcrops

Piedmont Acidic Cliff

Isolated Wetlands

Upland Depression Swamp Forest

Low Elevation Seep

Early Successional Habitats

Piedmont Prairie

A comprehensive review and update of the original natural heritage survey was conducted between 2001 and 2007, and was needed due to the dramatic development and corresponding habitat loss that has occurred here over the past 10 years. The survey revisited existing sites and added new sites. The state and county are currently working to rank the revised natural heritage site list. The new site list, maps, and state rankings will be available by the end of 2008. Mecklenburg County is one of only three counties in North Carolina to have completed an update of its natural heritage survey.

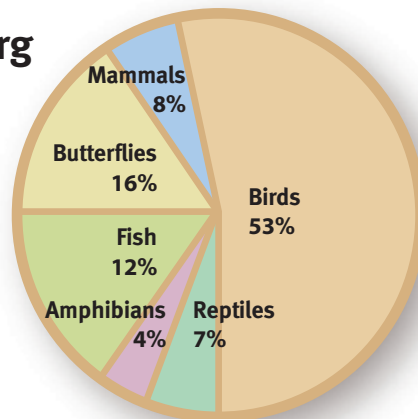
Plants and Animals

In 1997, the Park and Recreation Department began to compile and update existing plant and animal records for Mecklenburg County and the surrounding region. This was the first systematic attempt to compile this information for Mecklenburg County. In addition, numerous plant and animal inventory projects started in nature preserves, greenways, and other natural areas throughout the county. Data from these studies has been invaluable in providing a current understanding of the presence and distribution of plants and animals here. In 2003, a database was developed to house all records and staff have geo-referenced the data for use in GIS analysis. Thousands of records have been added over the past several years and currently over 35,000 records of animals and over 40,000 records of plants are contained in the database. As a result of this work, we are now in a better position to make informed, science-based decisions regarding local conservation of wildlife and native plants.

The following two charts highlight the diversity of animal and plant species documented within Mecklenburg County.

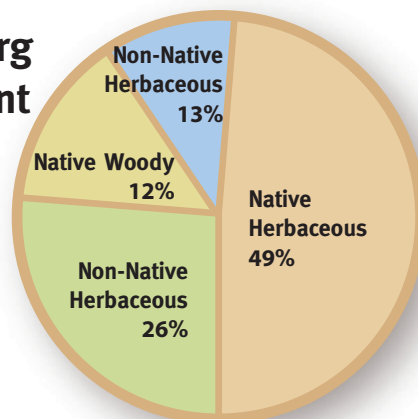
42	species of mammals
298	species of birds
40	species of reptiles
24	species of amphibians
70	species of fish
92	species of butterfly

Mecklenburg County Animal Diversity



819	species of native herbaceous plants
420	species of non-native herbaceous plants
201	species of native woody plants
207	species of non-native woody plants

Mecklenburg County Plant Diversity

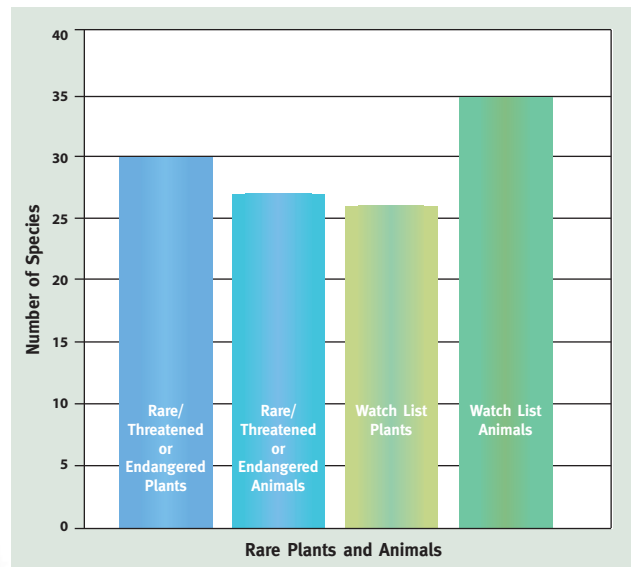


Rare Plants and Animals of Mecklenburg County

Several species of plants and animals native to Mecklenburg County are now listed as rare, threatened, or endangered by the state of North Carolina and/or the U.S. Fish and Wildlife Service. Among the most rare are Schweinitz's sunflower, smooth coneflower, Georgia aster, the Carolina darter (fish), American eel, and two mussels: Carolina heelsplitter and Carolina creekshell. Many more are on state or federal "watch lists," meaning that they are species whose status may soon warrant formal legal

listing as rare, threatened, or endangered throughout their range. In addition, Park and Recreation biological inventory data provides evidence that many additional species should now be considered of conservation concern at the county level. These species may be extirpated (permanently lost) from the County if conservation measures are not taken to ensure their long-term survival.

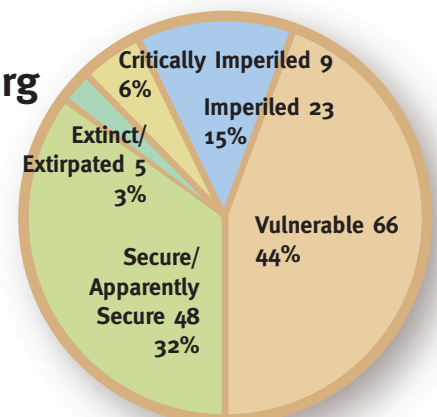
The following table highlights the number of rare species documented within Mecklenburg County as of the end of 2007.



Rare Animal Case Study: Birds

Data from bird inventory and monitoring projects conducted during the past 10 years was used to develop a County level conservation status assessment of birds. The results of this detailed review are presented below. Habitat loss due to development is the primary factor influencing the conservation status of most bird species in the County.

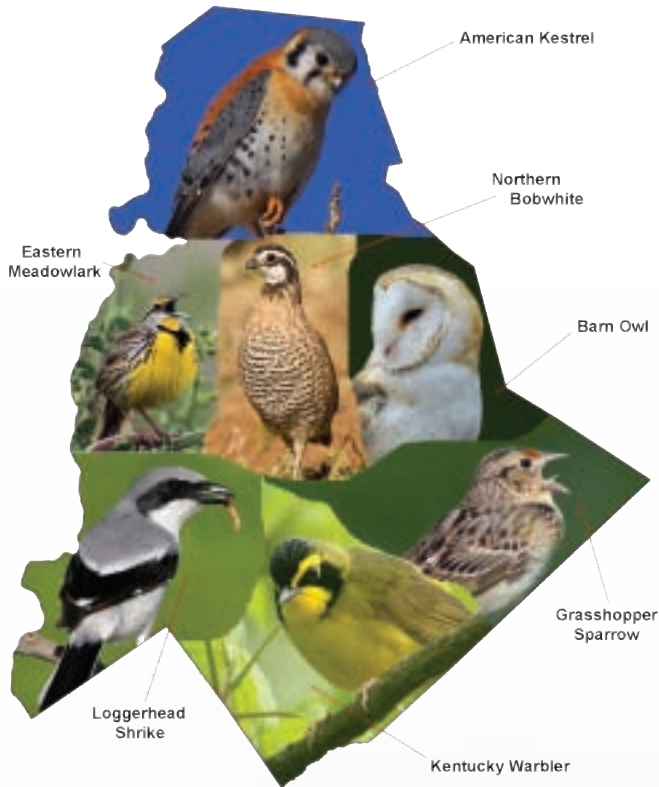
Conservation Status of Birds in Mecklenburg County



Biodiversity continued from page 103

Critically Imperiled Breeding Bird Species in Mecklenburg County

(layout by Marek Smith)



Threats to Our Biodiversity

As of 2008, the diversity of native plants and wildlife species remains rich in Mecklenburg County, but numbers of viable populations of many species have been reduced and there are numerous threats to their long-term survival. Data shows that while some of our native plant and animal species have adapted to the manmade environment and are able to thrive, most are struggling and are considered “vulnerable” to extirpation. Habitat loss, largely due to development, remains the primary threat to the continuing prosperity of our native species. Habitat fragmentation is the second most serious threat, as severely fragmented habitat is of poor quality for all but the most common and adaptable species. Habitat degradation due to the influx of invasive alien species or impacts from pollution is the third key factor in local species loss.

Threat Case Study: Invasive Plants

Invasive alien species of plants and animals are considered one of the most important threats to our native plant and animal diversity. These aggressive species often out-compete native species or they can directly kill other species. Examples of this include fire ant predation of ground nesting birds and reptiles, and kudzu’s effect on canopy trees. Invasive plants have become a major problem in Mecklenburg County and throughout the country. Their negative impact on our economy and on our native biodiversity is now well-documented and many agencies have developed invasive plant control plans at the federal, state, and local levels. In Mecklenburg County, 38 percent of the documented plant species are not native. The top 25 most invasive of these can be found at www.charmeck.org/Departments/StormWater/StormDrain/Invasive+Plants.htm. These and other species are being targeted for eradication by the local Invasive Species Task Force. They should not be planted anywhere in the county.

Cone Flower



Nature Preserves: Islands of Nature in a Sea of Urban Sprawl

By Don Seriff, Natural Resources Manager
Mecklenburg County Park and Recreation Department

For more than 30 years, Mecklenburg County's citizens and elected officials have been working to protect our unique *natural heritage*, our diverse wealth of wild plant and animal species and the natural communities in which they live. Since 1976, approximately 5,800 acres have been designated as *nature preserve* in Mecklenburg County. Approximately 65 percent of this total nature

preserve acreage has been purchased in the past 20 years. In addition to protecting natural communities and native wildlife and plants, these natural areas provide opportunities for passive recreation, watershed and water quality protection, air quality benefits, soil conservation benefits, and educational opportunities. Our citizens can be proud of their achievement in protecting these priceless lands.

Mecklenburg County Nature Preserve System: 1976-2007

Nature Preserve	Year Opened / Added	Land Use in Acres				Total Acres
		Forest	Grassland	Developed*	Water	
McDowell	1976	892.1	160.8	54.7		1107.6
Latta Plantation	1981	1141.3	63.5	134.6		1339.4
Reedy Creek	1983	719.8	9.3	6.7	0.5	736.3
Cowan's Ford	1992	477.8	181.9	0.4		660.1
Rural Hill	1992	375.9	106.0	6.5	0.4	488.8
Stephen's Road	1992	340.1		3.2		343.3
Auten	1994	268.8				268.8
Gar Creek	2000	315.9	37.1			353.0
Shuffletown Prairie	2001	13.8	4.3			18.1
Brackett Bluff	2002	59.1	2.0			61.1
Evergreen	2002	77.4				77.4
RibbonWalk	2005	177.4	7.2		2.3	186.9
Flat Branch	2007	42.2				42.2
Haymarket	2007	90.2	10.2			100.4
14 Nature Preserves	Total					5783.4

*Developed = nature centers, historic centers, park offices, picnic areas, restrooms, etc.

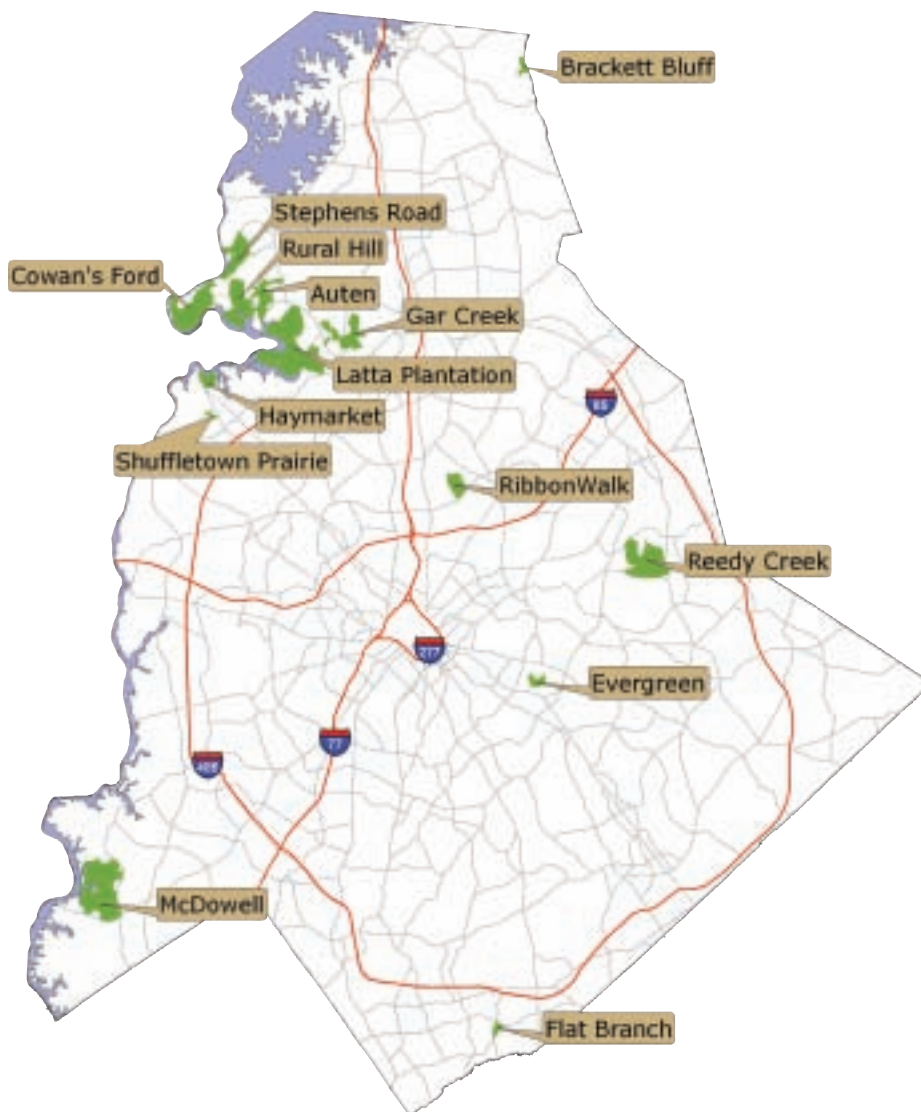
Nature Preserves continued on page 106

Upland Depression
Swamp Forest

Nature Preserves continued from page 105

Most of our natural areas were purchased through “fee-simple” land purchases using money from voter-approved bonds. Over the years, a large percentage of these local bond dollars were leveraged with matching grants from the state’s Clean Water Trust Fund and the federal government’s Land and Water Conservation Fund. To obtain these matching grants, Mecklenburg County agreed to either conservation easement deed restrictions or specific requirements to provide environmental “stewardship” and natural resource management of these properties, in perpetuity. As a result of these land purchases and agreements, Mecklenburg County established the *nature preserve system* within the Park and Recreation Department, and actively manages nature preserves and the valuable natural assets within them.

In 2007, staff calculated an estimate of the yearly economic *value* of the nature preserve system to our community based on numerous environmental, economic, and societal research studies (table 2). This data highlights the tremendous importance of Mecklenburg County’s 30 year investment in nature preserves. These natural areas are critically important to the future of our county’s natural heritage and the quality of life of our citizens. Successful management of these natural assets, like the county’s manmade assets, requires long-term planning and constant oversight.



The Yearly or Annual Economic “Value” of Mecklenburg County Nature Preserves - Michael Kirschman, 2007

Environmental Value		
Air Quality Benefit	Carbon sequestration / air pollution removal	\$ 2,210,000
Economic Value		
Tax Benefit	Proximity effect / increased property values of adjacent land owners	\$ 1,181,878
Tourism Benefit	Revenue - nature based and heritage tourism	\$ 1,083,333
Direct Revenue Benefit	Nature preserve program and facility revenue	\$ 181,000
Societal Value		
Health Benefit	Nature reduces stress (>100 peer reviewed studies) Nature play burns more calories than org. sports Time in nature is therapy for ADHD	Priceless
Education Benefit	Environmental education outperforms in-class results	Priceless
Quality of Life Benefit	Enriches lives, spirit, community	Priceless
		\$4,656,211+

The Future of Natural Areas

Natural areas and the biological assets that they protect are a finite resource that, once lost, cannot be replaced. Natural areas remaining within the county are being developed at an alarming rate. According to an American Forests Urban Ecosystem Analysis (Mecklenburg County, N.C. March 2003), between 1984 and 2003 the County lost over 35 percent of its tree cover and 36 percent of its open space, while impervious surfaces increased by 127 percent and have now become the dominant land feature in the County. This rate of habitat loss has increased since 2003 due to increased suburbanization fueled by dramatic population growth of an estimated 42 percent during this decade. Based on this rate of growth, it is believed that the county may be essentially “built out” within the next several years.

As of 2008, the total acreage of land designated as nature preserve represents less than 1.6 percent of all land in Mecklenburg County. Recent nationwide benchmarking results indicate “Mecklenburg County is lagging far behind other urbanizing counties in acquiring and protecting nature preserve lands strictly for passive recreation and natural resource protection.” According to biological data, habitat for several species of wildlife and native plants is critically imperiled within the county. Therefore, there is still an *extraordinary need* for the protection of additional natural areas

within Mecklenburg County to ensure that both our natural heritage and quality of life are preserved.

The principles of “conservation development” must be applied during the development process to protect quality habitat, provide corridors of connectivity between patches, and to protect additional small patches of functional habitat from being lost within the County. Nature preserves are essentially “islands of habitat” within an ever-growing sea of urban sprawl. Without habitat connectivity, over time, these isolated habitats will gradually decline in quality, in terms of both the number of native plant and animal species, and the viability of their populations. Acquisition plans for protecting properties, corridors, and habitat patches should incorporate the Park and Recreation Department’s bio-planning “natural area needs assessment,” and Mecklenburg County LUESA’s “best management practice” needs for protecting water quality. This will help ensure biological resources are protected.

Regional connectivity of habitat between counties is vital to the environmental health of the entire region. The distribution of wildlife and plant species and important habitats does not correspond to arbitrary political boundaries like county lines. Projects such as the Carolina Thread Trail have an important secondary benefit of protecting habitat by linking together nature preserves, while their primary focus is on acquiring land and easements for regional recreational purposes.



Reedy Creek
Nature Preserve

Greenways: A 42-Year-Old Concept Takes Shape

By Julie Clark, Park Planner
Mecklenburg County Park and Recreation

Greenway Master Plan Map



In Mecklenburg County, “greenways” are defined as linear parks that connect people and places. They are natural area corridors with multi-use trails that offer visitors opportunities to enjoy natural areas and provide alternative ways to move through our city, suburbs and towns. Greenways act as buffers which absorb flood waters and filter pollutants from storm water before it enters our creeks and streams and they provide habitat for wildlife and native plant communities. The greenway trail system is composed of a variety of surface types ranging from paved and concrete trails to crushed stone and boardwalk. The County currently operates 11 greenways totaling more than 30 miles of developed trails.



Mecklenburg County
Park and Recreation
*The Natural Place
To Be...*

Background

The concept of greenways in Mecklenburg County is not a new one. In 1966, the Charlotte-Mecklenburg master plan for recreation recommended greenways “as logical natural elements useful in creating a sense of physical form and order within the city.” The plan proposed that greenways preserve the open space of urban residential areas while providing both active and passive recreation areas.

Although part of the planning fabric for several years, it was not until 1980 that an official greenway master plan was developed. The 1980 greenway master plan called for a 73-mile network of trails along 14 creek corridors. The plan envisioned a “green necklace” of creeks around the County. McAlpine Creek Greenway was Mecklenburg County’s first designated greenway. Established in 1979, the park was advertised as “a nature preserve park” and the first gem in the “green necklace.” Building on a 1978 bond package which provided \$4 million for greenway acquisition, the 1980 greenway master plan identified and prioritized creeks for acquisition and future development. The plan outlined four objectives for the greenway program:

- ① the provision of both passive and active recreation for areas of the county with the largest potential needs and the greatest projected population growth;
- ② the supplementation of the developing park system; linkage between neighborhoods, commercial centers, parks, schools, and other urban growth areas;

- ③ open space preservation; and

- ④ the reduction of reliance upon the automobile for transit within the urban region.

Over the next 10 years, the greenway program focused primarily on land acquisition along the targeted creeks. Limited greenway trail development occurred along Campbell, Mallard, McAlpine and McMullen creeks. In 1999, the County developed and adopted the Greenway Master Plan Update. The update built on the objectives articulated in the 1980 Master Plan. However, the focus of the program was expanded to concentrate more on stream corridor and floodplain protection. The 1999 Master Plan Update proposed an expansion of the original “green necklace” to include 185 miles of trail corridors along 34 creek corridors and nearly 30 miles of overland connectors. Under the new plan, the greenway program was a means of protecting stream corridors and their floodplains from degradation due to land use development and poor land management practices while providing opportunities for passive recreation and non-motorized transportation. The plan recommended an expanded and accelerated development program for greenways. It encouraged that County agencies and the six incorporated towns take an active role in land acquisition and trail development.

Greenways continued on page 110

Greenway

- | | | |
|---------------------------------|---------------------------------------|--------------------------------------|
| 1. Six Mile Creek Greenway | 14. Steele Creek Greenway | 25. South Prong Rocky River Greenway |
| 2. Flat Branch Greenway | 15. Big Sugar Creek Greenway | 26. Clark’s Creek Greenway |
| 3. Four Mile Creek Greenway | 16. Irwin Creek Greenway | 27. Doby Creek Greenway |
| 4. McAlpine Creek Greenway | 17. Stewart Creek Greenway | 28. Toby Creek Greenway |
| 5. Irvin Creek Greenway | 18. Paw Creek Greenway | 29. Mallard Creek Greenway |
| 6. Campbell Creek Greenway | 19. Gum Branch Greenway | 30. Back Creek Greenway |
| 7. McMullen Creek Greenway | 20. McIntyre Creek Greenway | 31. Reedy Creek Greenway |
| 8. Edwards Branch Greenway | 21. Torrence Creek Greenway | 32. McDowell Creek Greenway |
| 9. Briar Creek Greenway | 22. South Prong Clarke Creek Greenway | 33. Long Creek Greenway |
| 10. Little Sugar Creek Greenway | 23. Ramah Creek Greenway | 34. Mallard Creek Tributary |
| 11. Kings Branch Greenway | 24. Rocky River Greenway | 35. Dixon Branch Greenway |
| 12. Coffey Creek Greenway | | |
| 13. Walkers Branch Greenway | | |

Greenways continued from page 109

Greenways Then and Now

Both the 1980 greenway master plan and 1999 update emphasized three primary goals for the greenway program: land acquisition, floodplain protection and water quality improvement, and trail development.

- 1) Focus land acquisition efforts along identified creek corridors for greenway development and habitat conservation

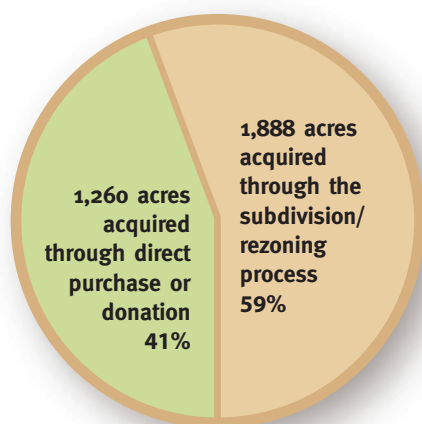
Results

Land acquisition can be a long and laborious process. Unlike a park or nature preserve which may consist of one or two large parcels of land, greenway acquisitions often involve numerous parcels of limited acreage. The number of parcels making up one mile of greenway trail can range from one to ten parcels. Mecklenburg County Park and Recreation has been the recipient of numerous land bonds that have helped secure over 3,100 acres of land along our creek corridors. In addition, Park and Recreation has gained greenway land through various grants and government programs, including Land and Water Conservation funds and the FEMA flood buyout program. The majority of greenway land acquired, however, is the result of requests made during the rezoning and subdivision process.

The 1980 master plan identified and prioritized land acquisition needs along 14 creek corridors. In 2007, some portion of land has been acquired along all 14 original creek corridors; acquisition is 60 percent complete along Little Sugar Creek Greenway. Land acquisition remains a critical component of greenway planning and development. A portion of the land bond passed in November 2007 is targeted for greenway land acquisition and will be focused, in particular, on acquisition along Little Sugar Creek.

Greenway Land Acquisition

Total greenway land acquired:
3,148 acres



- 2) Protect/conservate floodplain and improve water quality

Results

In addition to the protection of floodplain through acquisition efforts, the greenway program has undertaken trail development in conjunction with stream improvement and restoration initiatives. While stream restoration and floodplain improvement efforts are designed with the primary purpose of improving water quality or reducing flood levels, these same efforts also provide a natural stream-side setting for greenway visitors to enjoy. As part of the 1999 Update, Little Sugar Creek Greenway was selected as the pilot project for a greenway and stream restoration partnership. Led by Mecklenburg County Park and Recreation Department, Charlotte-Mecklenburg Storm Water Services, and the Land Use and Environmental Services Agency, the project transformed a 1.2 mile stretch of Little Sugar Creek from East Boulevard to Brandywine Road. The project included the creation of a linear park and construction of greenway trail that linked County floodplain property purchased through a federal flood buyout program to Freedom Park. Stream improvements included the restoration of over 5,200 linear feet of Little Sugar Creek, resulting in increased aquatic habitat, stabilized stream-banks, and a more natural meandering of the creek itself.

The addition of thousands of native trees and shrubs provided bank stabilization, runoff filtration, and stream-side habitat. These landscaping efforts have a combined effect of improving the health of the stream while providing shade and beauty for the enjoyment of the greenway visitor. The creation of two large wetlands help treat storm water runoff from surrounding neighborhoods, improve water quality and create habitat for wildlife. Walking along the trail, greenway visitors can now stop and learn about the history and restoration of Little Sugar Creek, enjoy a shady spot to stop and listen to the sounds of the rippling waters, and watch a great blue heron stalk its prey.

The success of the Westfield project on Little Sugar Creek Greenway has encouraged greenway planning and Charlotte-Mecklenburg storm water staff to continue to work together on the development of other greenway and stream improvement projects:



- **Little Sugar Creek Greenway:** Upstream of Morehead Street. Mecklenburg County Park and Recreation and Charlotte-Mecklenburg Storm Water Services are partnering on a project focusing on trail development and stream restoration along Little Sugar Creek Greenway between 7th Street and Morehead Street. By 2010, the greenway will link its current northern terminus at Belmont Avenue to its southern terminus at Morehead Street.
- **McAlpine Creek Greenway:** Between Sardis Road and Providence Road, the stream restoration project will include greenway trail design and connect to the existing four miles of McAlpine Creek Greenway.

3) Trail development — connecting people and places

Results

It has always been a goal of the County's greenway system to link residents with popular destinations through the development and operation of a multi-purpose trails system. Between 1987 and 2007, Mecklenburg County added over 20 miles of greenway trail along 10 creek corridors. Six Mile Creek Greenway, a 1.0 mile trail bordering Union County to the south, was constructed by the LUESA's Solid Waste Services and given to Mecklenburg County Park and Recreation to operate and manage. The longest greenway, Mallard Creek Greenway, is over 7 miles long; the shortest greenway, Briar Creek, is just over a quarter mile long. Developed trails are located in eight of the nine park districts. Walker Branch, a 0.5 mile greenway constructed by a private developer, opened in

Greenways continued on page 112

Greenways continued from page 111

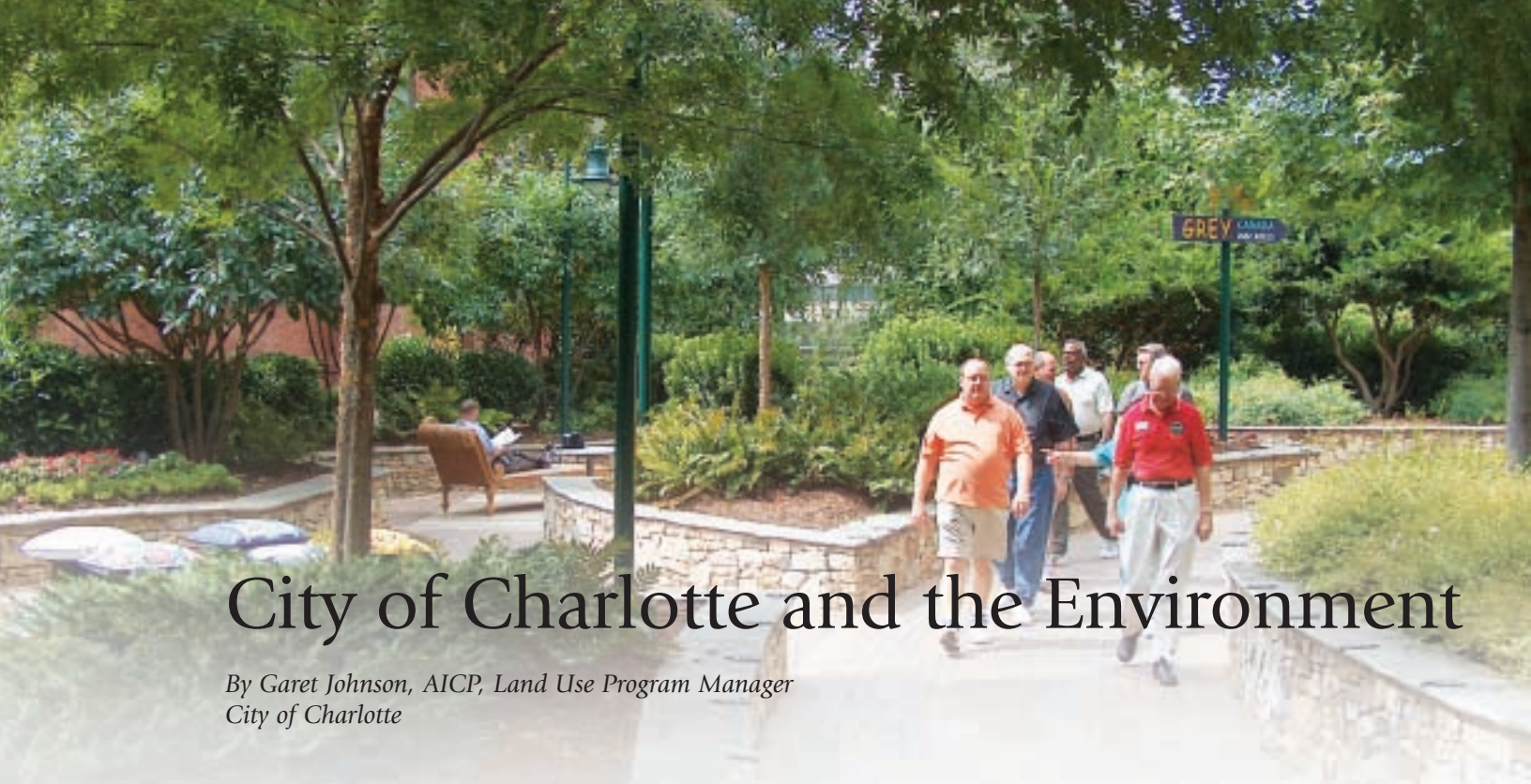
October 2006 and was the first greenway in the Southwest Park District. Davidson and Huntersville each have greenway trail developed in their town. In 2007, there are over 15 miles of greenway trail

under design and estimated to be constructed by 2010. Nearly five miles of the 15 miles under design will be constructed in the towns of Davidson, Huntersville, Cornelius and Matthews.

Greenway Planning and Development in Surrounding Towns

Town	Greenway Length	Trail Cost	Development Completed	Construction
Cornelius	McDowell Creek Greenway	0.75 miles	\$545,000	2008
Davidson	West Branch Rocky River	1.2 miles	\$1 million	2009
Huntersville	Torrence Creek Greenway Phase 3	1.3 miles	\$1.25 million	2009
	Torrence Creek Greenway Phase 1 and 2	1.4 miles	\$1.2 million	1989, 2003
	Lower McDowell Creek Greenway	2.3 miles	\$1.8 million	2009
Matthews	Four Mile Creek Greenway	2.3 miles	\$3.1 million	2009





City of Charlotte and the Environment

By Garet Johnson, AICP, Land Use Program Manager
City of Charlotte

Charlotte is fortunate to be at the center of one of the fastest growing regions in the country. In the last 20 years, Mecklenburg County alone has grown from 473,000 to more than 857,000 people, and the city of Charlotte itself is projected to grow by another 300,000 by 2030.

Recognizing that maintaining a healthy environment is a key part of responding to future growth, the *2005 Generalized Land Use Plan* for the City of Charlotte and Mecklenburg County, adopted in 1985, identified several environmental objectives. These objectives guided numerous initiatives over the last two decades to address our most critical environmental concerns. Highlights of these initiatives include the following:

Neighborhood Preservation, Redevelopment and Revitalization

- Following the adoption of the 2005 Plan, district and area planning efforts were launched which provided policy guidance for growth and development for specific areas within Mecklenburg County. In particular, these plans provided the blueprints for preserving, protecting and reinvesting in one of Charlotte's most cherished resources — its neighborhoods. The plans set forth recommendations to guide decisions regarding concerns such as land use, transportation, design, safety, economic development and environment.
- 1988 Transportation Bonds identified the creation of the Business Corridor Revitalization

Program to strengthen economic vitality along business corridors, complementing the stabilization efforts in adjacent neighborhoods.

- A zoning overlay district, PED, was created to help re-establish Charlotte's urban fabric by promoting a mixture of uses in a pedestrian-oriented setting of moderate intensity along identified "inner city" roadway corridors. The district encourages the reuse of existing buildings that contribute to the unique character or history of the area. The standards also encourage high quality design, mixed use development, the use of public transit and development which complements adjacent neighborhoods.

Water Quality

- Watershed overlay zoning districts were established which provide development regulations to ensure the protection of public water supplies.
- In 1999, the Surface Water Improvement and Management (SWIM) stream buffers were adopted to ensure that the stream and adjacent lands would fulfill their natural functions.
- The Floodplain Ordinance was revised to create less opportunity for areas within the floodplain to be developed and thus allowing more areas for free flowing floodwaters.

City of Charlotte continued on page 114

City of Charlotte continued from page 113

- Charlotte City Council, in November 2007, adopted a Post Construction Controls Ordinance that establishes requirements for controlling the adverse effects of increased post construction stormwater runoff and non-point source pollution associated with development and redevelopment projects.

Air Quality

- Revisions to the Subdivision Ordinance have expanded considerably the requirements for sidewalks so that new developments must have a minimum of four-foot sidewalks on both sides of residential streets and five-foot sidewalks on arterial roads. In an effort to improve connectivity and reduce vehicle miles of travel, the Subdivision Ordinance was amended to minimize cul-du-sacs and dead-end streets.
- The *2025 Integrated Transit and Land Use Plan* was adopted in 1998, setting the stage for a multi-modal transportation system integrated with land use. The plan identified a five-corridor rapid transit system and an expanded bus system to serve future growth. Light rail began operating in the first of these corridors in November 2007. Work continues on the other four corridors with another light rail line, and possibly a commuter rail line projected to open by 2013. The plan has been recently updated with the *2030 System Plan*.
- Transit-oriented zoning districts were established to create a compact and higher intensity mix of residential, office, retail, institutional and civic uses around rapid transit stations. The development standards of the transit zoning districts help to ensure that the station areas have attractive streetscapes, contain a functional mix of complementary uses, and provide the necessary facilities to support transit use, bicycling and walking.

- The City adopted its first comprehensive transportation plan in 2006. The Transportation Action Plan (TAP) defines policies and implementation strategies for achieving the City's transportation vision, while accommodating a significant increase in travel and protecting our quality of life.
- The City recently (October 2007) adopted new guidelines for designing streets to provide capacity and mobility for motorists, while also being safer and more comfortable for pedestrians, cyclists and neighborhood residents.

Land Development

- Charlotte's tree ordinance requires tree preservation and tree planting on commercial properties and in residential subdivisions. The ordinance is currently being updated.
- Implementation of Mecklenburg County's Greenway Plan has been strengthened by dedications and donations of land through the subdivision and rezoning processes.
- Policies were adopted as part of the General Development Policies in 2003 to ensure that both residential developments and mixed use centers were designed to respect the natural environment. These policies addressed the need for useable open space, preservation of steep slopes along perennial streams and the establishment of tree save areas. Additionally, these policies emphasized the need for redevelopment of existing retail shopping areas.
- In November of 2007, the City adopted a set of broad policies (a.k.a., General Development Policies — Environment Chapter) specifically aimed at minimizing the negative environmental impacts of land use and development. The policies address air, water and land.

These and many other initiatives have helped address environmental concerns since the mid 1980s and will continue to do so in the future. They have allowed us to reap many benefits from the region's strong population and employment growth. However, even with the many environmental initiatives that have been established, we continue to feel the impacts related to the form and distribution of growth. As an example, area residents are driving more than ever. The average work drive time increased from 22.1 minutes in 1990, to 26.0 minutes in 2000. This increase in vehicle travel has contributed to an increased number of air quality violations. Another impact we have experienced is loss of open space and tree canopy. Since 1980, Mecklenburg County has been losing open space at the rate of 5 acres per day, and lost more than 35 percent of its tree cover between 1984 and 2003.

There is no question about whether Charlotte will continue to grow, however, the pattern and form of future development will be critical in determining the city's livability and sustainability in the 21st century. Continuation of our dispersed development pattern could threaten those very qualities that influence people and business to locate in the Charlotte region.

Some of the more recent initiatives, in particular, are focused on encouraging a more compact development pattern. Many of these initiatives were so recently adopted that not enough time has passed yet to measure their success.

One initiative currently underway that specifically addresses Charlotte's development pattern is the update of the overall growth framework, originally developed in the mid 1990s. The framework recognizes that despite Charlotte's generally dispersed development pattern, it has an underlying organizing framework consisting of "centers," "corridors," and "wedges."

- **Activity Centers** are focal points of economic activity typically planned for moderate, and sometimes for high, density concentrations of compact development. They are generally appropriate locations for significant new growth along with enhancements to the supporting infrastructure, particularly the transportation network.

- **Growth Corridors** are the areas where rail lines, planned rapid transit lines, major arterials and interstates/expressways generally run parallel. Corridors can accommodate uses requiring high levels of access, and moderate to higher density residential uses and employment concentrations.

- **Wedges** are the large areas between corridors where residential neighborhoods have developed and continue to grow. The wedges provide a wide range of housing choices, along with residential supportive uses.

This growth framework accommodates greater amounts of development in identified centers and corridors by utilizing existing and planned infrastructure and transportation systems to support that development. Lower density development characterized by neighborhoods and their supportive land uses remains in the wedges. Thus, this framework creates an efficient connection between land uses and the transportation system needed to support them, particularly by organizing land uses in a way that will support the provision of a range of transportation choices, and housing and employment options.

The Centers, Corridors and Wedges Framework also builds upon the work Charlotte has done, especially over the last few decades, to build a viable center city. The Framework recognizes Center City Charlotte as the most significant Activity Center and as the region's office and cultural hub. Continued emphasis on the Center City is vital to our long term sustainability.

While the Centers, Corridors and Wedges Framework has been a good tool to help organize our land use and transportation future, it is also important to our continued sustainability that we are able to refine the framework and to strengthen the guidance it provides. Additionally, it will be important that we become even more diligent about its implementation so that it guides not only land use decisions, but decisions about capital investments, regulatory changes and a host of other municipal activities. Thoughtful implementation of the growth framework, along with the numerous other environmental initiatives will ensure that growth occurs in a way that enhances the community and respects the natural environment.

'Smart Growth' is a Hallmark of Cornelius

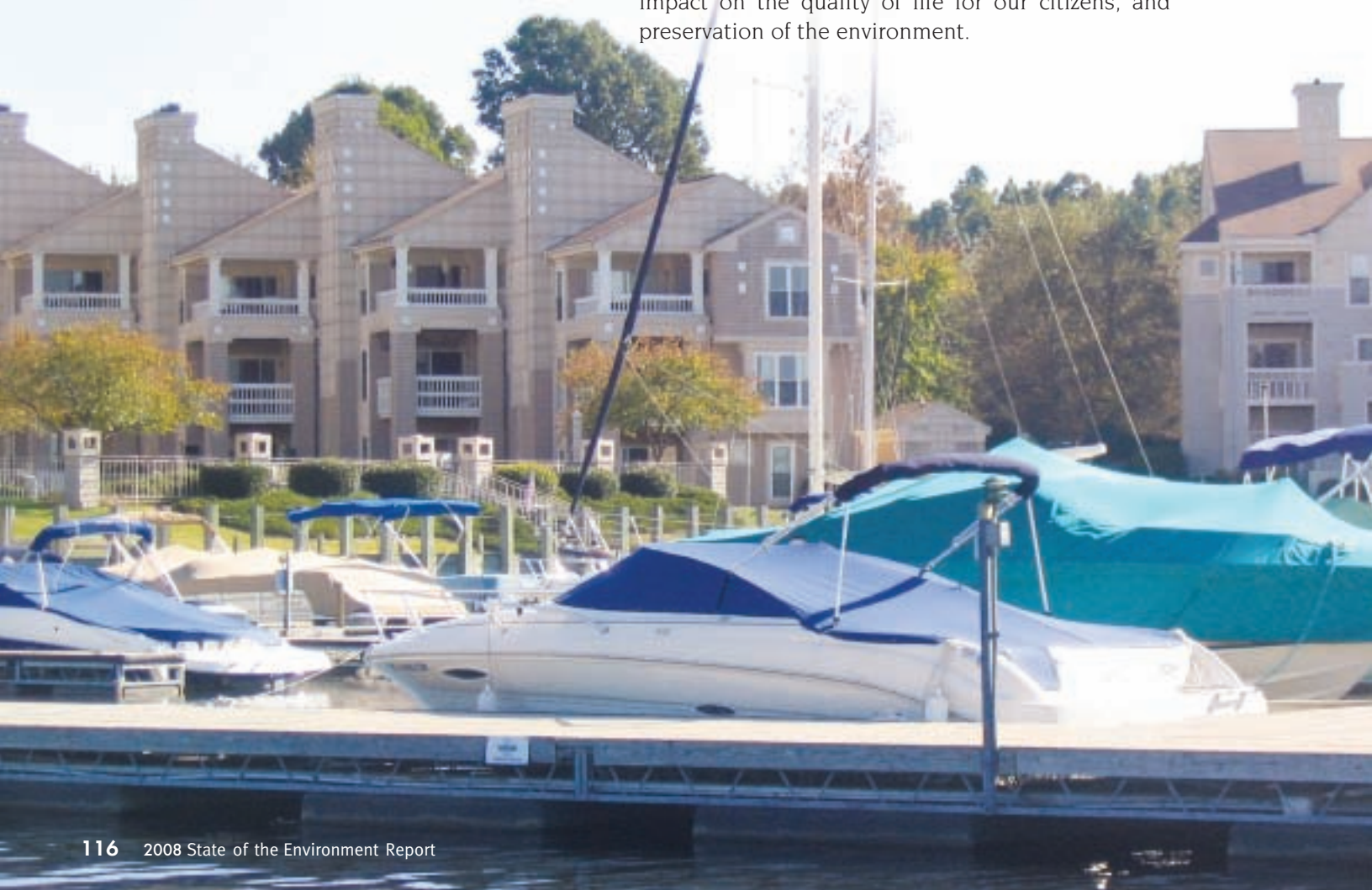
By Karen Floyd, Town Planner, Town of Cornelius

Cornelius experienced a growth surge in the late 1980s that continues today. With the creation of the Cornelius Sphere of Influence in 1984 and the extension of sewer, the town began to expand west of I-77. As development occurred, Cornelius annexed these areas, the old cotton mill closed and the first high-end planned waterfront community in town, The Peninsula, was developed.

As commercial development occurred, the Cornelius Town Board of Commissioners recognized the need to focus on a land use and planning vision, especially as it related to Lake Norman, the area's water source. Therefore, the town implemented state watershed districts in 1993, and an additional district in 2007 that facilitates maintaining water quality.

Cornelius has been proactive through the utilization of zoning and land-use regulations to preserve usable open space for our citizens, including zoning a large portion of the town for rural preservation. The Rural Preservation District is coded to accommodate very low-density residential development and agricultural uses, protect natural vistas, and landscape features that define our rural heritage.

This district has been developed to protect the continuance of our rural areas and their customary development patterns and uses to prevent the sacrificing of environmentally sensitive landforms, natural vistas, and scenic features. About 1,585 acres of land has been zoned as Rural Preservation District in Cornelius. The town has also developed multiple parks and greenway systems that have a positive impact on the quality of life for our citizens, and preservation of the environment.

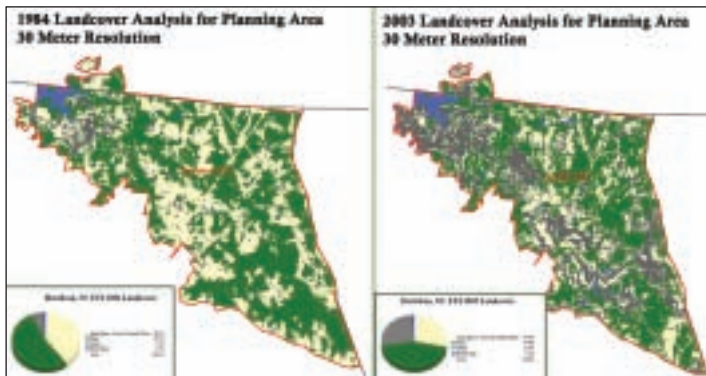


Tree and Open Space Preservation in Davidson

By Lauren Blackburn, Town Planner, Town of Davidson

The quantity and quality of open space and tree canopy is directly related to the health of ecosystems and wildlife habitat. These natural resources are also critical to human health and well-being. In fact, our communities would be unhealthy, unattractive and unsustainable without the preservation of substantial open space and tree cover. So, why do we continue to see the rapid sacrifice of these resources through development?

In 1984, within the Town of Davidson's current Extra Territorial Jurisdiction (ETJ) and incorporated town limits, 40 percent of land cover was undeveloped open space and another 53 percent in tree cover. By 2003, open space dropped to 28 percent and tree cover 44 percent of the planning area.¹



Residential development was largely responsible for the 43-percent reduction in open space and 20-percent reduction in tree cover over the 20-year span, and continues to challenge environmental sustainability. More specifically, allowed suburban densities and land development policies promote clear-cutting and mass grading, and developers haven't realized the economic benefit to abundant natural resource protection. Local governments need to provide better information to developers regarding open space and tree preservation goals and strengthen policies to protect these natural resources.

The Town of Davidson recognized the benefits of open space when they adopted requirements for open space preservation as part of rural residential

development in the rural areas in 2001. Between 40 and 50 percent of a property must remain as undeveloped open space, and homes should be clustered to maximize public enjoyment of protected natural resources.² These requirements are considered some of the toughest in the Charlotte region, but they still aren't enough. Important landscapes and habitats are being lost through development because there is no comprehensive plan for open space preservation, connectivity or management. Unbuildable stream beds and slopes are being "preserved," while habitats for threatened species are covered with homes and roads.

Davidson is working with Greenways Incorporated to create a large-scale inventory of important natural assets, called the Davidson Greenprint. Geographic Information Systems (GIS) data is the main source of information showing where wetlands and prime farming soils might be located. Volunteers in the community are also "groundtruthing" properties to verify or discover important natural assets such as north facing slopes, rock outcroppings or significant trees. This information combined with the conservation goals of local stakeholders will create a master plan for natural resource protection and management. The plan will direct public investment in open space, farmland and resource protection, and better inform which parts of properties should be preserved through development. The town expects to complete the Greenprint by the end of 2008.

A related project, the Tree Inventory and Canopy Master Plan, studied mature trees in or near public rights of way and provides recommendations for tree management for purposes of public safety and tree health. Bartlett Tree Experts has completed a draft report for the Tree Inventory, and the town will work on tougher tree preservation ordinances in coming months. Through an aggressive tree maintenance and replanting program, the town will continue to enjoy a healthy canopy and tree-lined streets for many years to come.

¹ Presentation to Davidson Planning Board November 2006 by Rick Roti, American Forests.

² See the Rural Planning Area section of the planning ordinance for more information: [http://www.ci.davidson.nc.us/units/planning/ordinance/pdfs/Section percent2004 percent20- percent20Planning percent20Areas.pdf](http://www.ci.davidson.nc.us/units/planning/ordinance/pdfs/Section%20percent2004%20percent20- percent20Planning percent20Areas.pdf)

The Town of Huntersville: Nearly 20 Years of Growth



By Whitney Hodges, Town Planner, Town of Huntersville

In 1990, the population of Huntersville was 3,014 people; today, about 40,000 people call Huntersville home. The town has experienced exponential growth in the last 20 years, but has been more aware about the development process on the environment. A development proposal today verses a development proposal 20 years ago must provide tree save areas, adhere to local greenway and bikeway plans, and must meet stringent water quality measures.

Proximity between Charlotte and Lake Norman, lower home prices, less traffic and quiet communities catapulted Huntersville's population to 24,960 in 2000. Increased construction began to affect the land and waterways here as well. In 1996, the town set out to guide its rapid growth by making changes to the zoning ordinance, which — prior to this time — was given little attention in regard to development's potential impact on the environment.

The zoning change allowed for a mixture of uses: residential, retail, office, etc., in one development;

allowed for a cluster style of development which concentrated housing; and allowed for larger areas of open space. Overall, the zoning ordinance began a focus on the design of the project. Importance was placed on the public realm — roads, parks, open spaces, sidewalks and connecting people to places in more ways than just via the automobile.

In 2003, in response to the increased growth, Huntersville embarked on the Community Plan, which clearly defines the town's vision, and committed to protecting natural resource, natural terrain, wildlife habitat, endangered species and air quality.

Huntersville also adopted a Water Quality Ordinance in 2003. Stemming from the natural resource goal of the Community Plan, this ordinance seeks to reduce storm water runoff rates and volumes, minimize increases in non-point source pollution, and promote Low Impact Design principles. The ordinance applies to all new development and redevelopment sites within the town's jurisdiction.





The Town of Matthews is Committed to a Healthy Environment for All

By Hazen Blodgett, Town of Matthews

The Town of Matthews recognizes that protecting our environment is an important responsibility to the community.

We addressed this responsibility by creating citizen advisory boards. A Solid Waste Advisory Committee was created in the early 1990s to advise the town on issues such as garbage collection and recycling, and an Environmental Advisory Committee was created to help monitor a medical waste incinerator operating within our borders, as well as other issues bound to develop as the rural community rapidly became more urbanized. In 2001, these committees merged into the current Environmental Advisory Committee, which regularly discusses solid waste and garbage, air quality, storm water, and other physical agents.

Through the actions of these committees, the town required its solid waste contractor to create a yard waste recycling facility, which now is used by other areas that they service. This yard waste collection has helped the town divert more than the state goal of 40 percent of our solid waste from the landfills. We also have held annual household hazardous waste disposal events.

Matthews has been recognized by the State of North Carolina as a leader in public awareness of the area's air quality. We maintain four signs located along major thoroughfares (Pineville-Matthews Road, Monroe Road, Independence Boulevard, and Fullwood Lane) that report the state-predicted daily ozone level. The town also took pollution-reducing energy efficiency into consideration when it designed the Town Hall/Library facility and the Public Works facility. Operationally, the Matthews Public Works facility uses the alternative fuel bio-diesel rather than the higher-polluting diesel in

their vehicles. In an effort to reduce vehicle emissions due to traffic congestion, the Town of Matthews also modified the solid waste collection schedule during the ozone season so trucks can start earlier and not block thoroughfares during the morning rush hours.

On the water quality side, with the support of the County's Surface Water Quality Program, Matthews approved and enforces a Storm Water Ordinance that has been used as a model for other areas. We also maintain our roads and associated storm drains in an effort to keep the waters of Matthews swimmable. Also in coordination with the County, Matthews has developed a series of greenways, which promote healthy living for our citizens in a walkable community, as well as a noise ordinance.

In 1997, Matthews developed a zoning category of R-VS (or Residential - Varied Styles) to allow greater intensity of housing while retaining the flavor of the residential community. In that same year, Matthews adopted a Downtown Master Plan, which encouraged greater density and intensity of development in an expanded "downtown" boundary.

In the intervening decade, both actions have allowed for increase in population and business activity without spreading impervious surface on as much land area as was the common practice. Growth policies for future transit station locations also direct concentrated development in confined geographic boundaries, with a focus on incorporation of green space within urban centers. In 2007, Matthews adopted new landscaping and tree preservation guidelines for protecting and expanding the town's tree canopy coverage.

Town of Mint Hill Continues Steady Growth

By Dana Goins, Town Planner, Town of Mint Hill

The Town of Mint Hill and extra territorial jurisdiction (ETJ) encompasses approximately 36 square miles in the eastern reaches of Mecklenburg County, bounded to the north by Albemarle Road and Cabarrus County and to the south by Idlewild Road and Union County. Once a small agricultural area, the town has transformed into a burgeoning bedroom community of the greater Charlotte area. With its proximity to uptown Charlotte (approximately 10 miles), a strong sense of community and a sustained affordability, Mint Hill is an attractive location for those seeking the convenience of a large metropolitan area while maintaining a small town atmosphere. Residents in the area also have access to the greater Charlotte region with five Interstate I-485 interchanges located within the town.

Originally founded in 1917 with a population of 2,284, Mint Hill has grown over the years, reaching a population of 14,922 in 2000. The town continued this growth and in 2005 the population was 17,871, a growth average of 3.6 percent per year. Estimates for current and future years put that number even higher as subdivisions continue to be built around the town.

Mint Hill has also seen an increase in commercial development in the recent past. Downtown Mint Hill will continue to flourish as many retail, office and medical developments have been approved. The Clear Creek Business Park is off to a good start with Carolinas Medical Center opening a Medical Campus in December 2007. Along with planned warehouses and office uses, a high school is scheduled to open in the park in 2010. Another exciting addition is the Bridges of Mint Hill, a regional mall planned at the Lawyers Road and I-485 interchange. Grading has begun and completion is expected within upcoming years.

As development continues to occur, local leaders have noticed the physical affects of such growth on our natural environment. In July 2007, the Post Construction Ordinance came into effect, mainly protecting ground water resources. With this ordinance, buffers were mandated that require



restrictive development on areas that are adjacent to the headwaters of the Goose Creek River. Downstream live the endangered species, the Carolina heelsplitter, although the dwindling population is fading fast. The aim of these buffers is to protect our streams, therefore protecting the areas where the heelsplitter lives with hopes of repopulating the species. Another protective feature that has been used in recent years in Mint Hill is the Conservation Subdivision. Developers have used this element of Mint Hill Zoning Ordinance to build new subdivisions while conserving valuable natural areas.



Town of Pineville Thrives, Strives to Maintain 'Small Town Charm'

By Kevin Icard, Town Planner, Town of Pineville

The Town of Pineville encompasses approximately five square miles in the southern portion of Mecklenburg County, bordered to the north and east by Interstate 485 and Charlotte and to the south and west by South Carolina.

Pineville is steeped in history. In 1852, the "iron horse" came to the community when the Charlotte, Columbia & Augusta Railway was put in operation, and a passenger and freight station was built at Morrow's Turnout (the current downtown). In this area, there were many large and beautiful pine trees casting their shadows over the community. Thus, when the newly painted sign went up on the railroad depot, the name "Pineville" was displayed.

Once a small agricultural area with a thriving cotton mill, Pineville became an incorporated municipality in 1873. In 1900, the town boasted a population of 585 souls, two bar rooms and 10 stores, and an average sale of 6,000 bales of cotton from the surrounding farms. The town has since transformed into a regional destination for dining, shopping and entertainment, and is an attractive location for those seeking the convenience of a large metropolitan area while maintaining a small town atmosphere.

Pineville has grown over the years, and in the 1980s and 1990s much of that growth came in the form of retail centers. Only in the past 10 years have developers rediscovered the attractiveness for residential development. With 1,300 homes

approved and scheduled for development, the town will increase its population from 6,500 to more than 10,000 within the next few years.

The town has also seen an increase in medical/office development in the recent past. The former local Mercy South Hospital has been expanding by leaps and bounds, and was renamed Carolinas Medical Center - Pineville, increasing its capacity to more than 500,000 square feet of space to better serve the community with emergency and specialized care.

Pineville is a thriving place to be, with many conveniences, but aims to preserve its small-town charm and historic Main Street. Town planners look forward to guiding this growth for a bright and sustainable future. One of the ways we are managing this growth is through the July 2007 enactment of the Post Construction Ordinance, protecting surface and ground water resources. With this ordinance, buffers were mandated that require restrictive development on areas that are adjacent to Little Sugar Creek, Sugar Creek and McAlpine Creek among other protective regulations.

Another way the town is managing growth is in the form of new small area plans (currently in development) that include architectural, pedestrian, bicycle, and other amenities to further guide this ongoing growth, reduce our environmental impact and preserve the charm that makes Pineville a great place to live, work, and play.

Environmentally Friendly Buildings and Development

*By Mark Hahn, Director and Tom Crow, Senior Project Manager
Mecklenburg County Real Estate Services*

The first edition of the Mecklenburg County State of the Environment Report, in 1987, mentioned the need to comply with American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) energy standards. The 1989 report mentioned indoor air quality for the first time. More recently, the 2006 issue of the report identified a new, environmentally sensitive path for building design.

The The Public Library of Charlotte & Mecklenburg County took a step forward with the construction of the new children's library, **ImaginOn: The Joe & Joan Martin Center**. This facility was designed using a high-performance

building rating system called LEED (Leadership in Energy and Environmental Design), is a rating system created by the US Green Building Council that allows building owners, designers and contractors to measure how "green," or environmentally friendly, a building is.

"Green" design and construction practices significantly reduce or eliminate the negative impact of buildings on the environment and the building occupants. A third-party review process grants or denies certification, based on verification that the design and construction meet specific criteria. Points are gained for how a building is sited, its impact on the site, energy usage, water usage, conservation of materials and resources, and indoor environmental quality. Verified point levels result in ratings of Certified, Silver, Gold or Platinum.

Results of constructing "green" buildings include healthier environments for employees, which can improve productivity, as well as reductions in energy usage, which lowers operational expenses. Industry experts generally indicate that LEED rated buildings can be achieved at little to no additional costs over similar non-LEED rated buildings. A zero to two percent first cost premium for a Silver rated building can usually be "paid back" in operational cost savings over a few years or less, depending on the energy efficiency strategies utilized in the design.

In response to the Mecklenburg County Board of Commissioners' adoption of an Environmental Leadership Policy in 2004, the Mecklenburg County Real Estate Services Department initiated an internal policy to pursue LEED certification on all building construction projects with a value over \$2 million. Building projects with a lesser value will be designed and constructed using sustainable design principles, but LEED certification is only pursued on a case by case basis. The renovation of Freedom Mall into County offices is the first project to be completed using the LEED rating system. This building incorporates daylighting



ImaginOn: The Joe & Joan Martin Center

Interior sun shades in the reading area





strategies, an ice storage system to better manage energy usage, an underfloor air distribution system to improve indoor air quality and comfort, and solar (photovoltaic) panels to power some light fixtures. Environmentally friendly building materials and furnishings will allow employees who are sensitive to certain chemicals to move in without the issues normally associated with new construction materials. Other LEED projects currently being managed by the Government Facilities Division of County Real Estate Services include the Jail North Youthful Offender Addition, the new Medical Examiner's Office, and the Revolution Regional Sports and Learning Academy. Each project has a goal of achieving a Silver LEED rating.

Construction of new LEED buildings is only part of achieving continued energy and water savings and overall healthy indoor conditions. Facility maintenance and upkeep must take into consideration environmentally friendly cleaning chemicals and processes. Energy and water savings can also be realized in older existing facilities. Energy audits and life cycle cost analyses are two strategies to identify appropriate system types for replacement. As HVAC and lighting systems are replaced, the most energy efficient equipment that is practical to use is selected. The Buildings & Grounds Division of County Real Estate Services is employing all of these strategies. This division is performing energy audits on numerous buildings to identify energy saving strategies and has implemented a program for the use of "green" cleaning chemicals. Over the past couple of years, this division has also replaced millions of dollars worth of old, worn-out equipment with new energy efficient systems.

Going beyond the use of the LEED rating system for the design of County-owned facilities,

Freedom Mall Renovation Project

Mecklenburg County has also made a priority of encouraging developers and building owners to construct environmentally responsible buildings. Mecklenburg County proposed new legislation that would allow counties to rebate building permit fees to building owners, who construct LEED rated buildings. Senate Bill 581 became Session Law (S.L.) 2007-381 as it was adopted in August 2007. Through S.L. 2007-381, the State of North Carolina promotes sustainable projects as follows:

In order to encourage construction that uses sustainable design principles and to improve energy efficiency in buildings, a county may charge reduced building permit fees or provide partial rebates of building permit fees for buildings that are constructed or renovated using design principles that conform to or exceed one or more of the following certifications or ratings:

- ① Leadership in Energy and Environmental Design (LEED) certification or higher rating under certification standards adopted by the U.S. Green Building Council.
- ② A One Globe or higher rating under the Green Globes program standards adopted by the Green Building Initiative.
- ③ A certification or rating by another nationally recognized certification or rating system that is equivalent or greater than those listed in subdivisions (1) and (2) of this subsection.

As local government entities, banks, and developers continue to design and construct more "green" buildings, the process of designing and operating buildings in a sustainable, environmentally friendly manner will simply become the "normal" way of doing business.